

AN EMPIRICAL ANALYSIS TO DETERMINE THE LABOR PRODUCTIVITY OF FEMALE HOME- BASED WORKERS IN PUNJAB, PAKISTAN

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Abstract

In Pakistan, the female labor force participation rate is 22.0% and almost 36% of employed females are involved in the informal economy and the most of them are home-based workers (HBWs). As per the UN-Women report, HBWs (65% of them are women) contributed nearly Rs. 400 billion through their earnings to the economy. This figure is about 3.8% of the total GDP in the year 2013-14. Although they have a massive contribution in the informal economy, they are overlooked and not included in the mainstream market economy. They are confronting with the inter-generational poverty as their earnings has not been influential in decreasing their poverty level. There is an immense requirement to enhance their capacity for the better productivity and improved living standards. Against this backdrop, the basic objective of this study is to empirically investigate the role of four factors namely, (1) human capital (2) middle man (3) social capital, and (4) awareness of laws in determining the labor productivity of female HBWs in Punjab. "The Punjab Home-Based Workers Survey 2016" dataset, gathered by the Bureau of Statistics Punjab, has been used for analysis. It is observed that the labor productivity of female home-based workers is on a higher side who have awareness of labor laws, received training, a higher education, participated in industrial demonstrations, and don't depend on middleman for obtaining the raw material. The results provide evidence to suggest policy implications and implementation of regulations regarding HBWs for financial empowerment.

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Introduction

A home-based work is a worldwide trend observed both in emerging and advanced nations and is growing at a rapid pace. Home-based workers (HBWs) perform paid work at home or in neighbouring places, irrespective of as salaried person or independently hired people.¹ Usually, they are involved in production and post-manufacture processes like art and crafts, sewing/weaving, paper products, and others.² Presently, many HBWs produce under subcontracts for global value chains.³ On a demand side, the pursuit for least expense inputs by local and international organisations is the reasoning behind the rise of the locally established home-based industry. Ashraf et.al (2015) mentioned that “cost factors are broadly seen to be the key trigger of the offshoring of labor-intensive stages of manufacturing to lower-income regions through greenfield FDI”. On the supply side, deprivation is recognized as the main factor of workforce involvement in home-based job. In Punjab province, the participation rate of male and female workers is 69.3 percent and 26.5 percent, respectively. Among all the female workforce, 6.7 percent are involved in informal segment with a major role as HBWs.⁴

In Pakistan, because of various causes including cultural and social customs, security, law and order situation, and the nature of accessible means of transportation, an exceptionally low extent of women work beyond their homes. Almost 40% of females don't go to work because of family limitations. Amongst the rest of the female workers, 30% are occupied in home-based job.⁵ Moreover, out of these 30% female home-based workers, 73% are practicing this because of mobility limitations.⁶ Majority of the FHBWs are illiterate and are confronting the inter-generational poverty (Hasan and Azman, 2014). They are further oppressed by the mediators. Their wage has not been influential in decreasing the deprivation levels. There is a massive need to upgrade their capacity for the better throughput and

¹ Women in Informal Employment Globalizing and Organizing; Empowering Informal Workers, 2018

² *Women in Informal Employment Globalizing and Organizing; Empowering Informal Workers, 2018*

³ Globalization and Homebased Workers, 2000

⁴ Labour Force Survey, 2017-18

⁵ Policy document on female labour force participation in Pakistan, Asian Development Bank, 2016

⁶ Gendered Perspective of Informal Sector of the Economy in Pakistan, 2015

improved lifestyle.

Work Productivity is a critical financial pointer and a significant proportion of monetary development.⁷ The efficiency that transforms work into production is determined by an financial framework. Productivity is often utilized as a genuine determinant of competition. (Porter, 2003). The market estimations or assessments can give the proof to figure out labor market approaches, for example high usefulness is firmly connected with explicit sorts and undeniable degrees of human resources, which demonstrates the need to assemble approaches regarding training and education to improve the productivity of the labours. The improvement in labor efficiency of HBWs not just expands the monetary prosperity of the people yet in addition a profoundly useful HBWs market can assume a significant part in the development of the homegrown economy by appealing foreign investors Azid et. al (2001).

The objective of this research is to inspect the characteristics that influence the labor productivity of FHBW's. The four key factors include, by concentrating on four key factors, namely, (a) human resource- with respect to trainings and education, (b) the middleman role with respect to procurement of raw goods, (c) social capital as of involvement in exhibitions and trade, and (d) awareness of regulations, with a proportion of usefulness characterized as the proportion of pay procured from locally situated work each day to the quantity of time worked each day.

The main contributions of this study are as follows. Firstly, this work is novel to analytically investigate the impact of a social capital and a middleman along with other most frequently used variables on the work productivity of FHBWs. A few researches analyse the effect of different demographic and socio-economic variables on the productive capacity of labours calculated in terms of the working hours or workforce contribution ratio in the informal segment (e.g., Hassan & Farooq 2015, Azid et. al, 2001, Awan et. al, 2015, Hassan & Azman, 2014, Khan & Khan, 2006). Empirical evidence is not available considering the magnitude to which FHBWs are being manipulated by middlemen regarding earnings and productivity. Secondly, majority of the previous literature on FHBWs contribution in the informal segment consist of a limited set of observations. The dataset, "The Punjab Home Based Workers Survey 2016", is used consisting of a large set of observations. Among the total of 13,145 observations, 12,181 are women. Thirdly, majority of

⁷<http://www.ilo.org>

research cover only one district in Pakistan (e.g. Williams et.al, 2016, Kazi & Raza, 1989, Khan & Kazmi, 2008, and Masood & Barlow, 2013), and the findings are not suitable to be generalized. Controlling the area (rural, urban) and divisional fixed effects, the heterogeneity is avoided, and the outcomes of the study are applied to Punjab province.

It is observed that realization of work regulations, the more elevated level of schooling; coaching particularly from government foundations and participating actively in organizational shows emphatically influence efficiency. Nevertheless, the work efficiency of those FHBWs is greater who are not depending on agents for the acquisition of the raw substance. The assessment of this research assists with perceiving the progress methods of useful limits of FHBWs and would accordingly assist with recommending policymakers in taking monetary strengthening drives for them. The consequences of this study give proof on the desperate requirement for strategy suggestions and authorization of regulations concerning HBWs for their monetary strengthening by perceiving the elements that upgrade their efficiency. In addition, the review will give assistance to the policymakers in accomplishing the Sustainable Development Goals (SDGs) connected with strengthening, gender equality, and poverty reduction, and advancement of useful business, good work prospects, and comprehensive development for everyone.

The rest of the article is structured as follows: Section 2 gives scientific foundation and previous literature about connection between the previously stated four factors and usefulness. The details of data and adopted methodology is given in Section 3. Section 4 depicts the factual and financial outcomes; the conversation and strategy suggestions are introduced in Section 5.

2. Literature Review and Rational Discussion

Human capital and labor productivity

An intangible resource of an individual- comprises training, education, wellbeing, and further specialised activities which improve the degree of capacities, information, values, skills, and societal resources of a worker that prompts an improvement in worker's presentation, fulfilment as well as lifts the association's productivity (Marimutho et, al, 2009).

Human resources hypothesis remains on the theory that wellbeing, coaching, preparing, and so forth enhance the productivity of the workers. It is seen that human resources plays a fundamental part in

supporting the efficiency of laborers in enterprises and firms (for example Burger and Teal, 2014, Colombo and Stanca, 2008, Aggrey, 2010). We emphasis on two elements of human resource to be specific, training and education in this work.

Education

The significant part of human resources which emphatically adds to the nation's workforce supply and efficiency is education. Delsen et al., (1999) reveals that laborers or representatives with greater literacy are more useful or have a better commitment to the usefulness. By utilizing the information of Third Integrated Household Survey (IHS3) 2010-2011, led in Malawi, Smith et al (2016) infers that expanding the quantity of long tutoring periods or standard of instruction from to secondary could bring about an expansion in the nation's tax income roughly about 580 million each year. Delsen and Schonewille (1999) indicated that human resources interest through tutoring has two unique impacts. Firstly, the static impact showing that tutoring upgrades the individual usefulness of workers. The other one is a powerful impact recommending, the tutoring expands the usefulness of the whole workforce as, higher instructed laborers have more understanding in the production process, become creative and proficiently utilize data sources which enhance the production development. Also, Jones (2008) expressed the solid proof at the microeconomic level that schooling and efficiency estimated through laborers' profit are emphatically connected.

The usefulness of FHBWs is also emphatically connected with the degree of schooling. A rise in the degree of schooling can expand the likelihood of females' investment as well as allotment of job in market practices (Azid et.al, 2001). Universally, the involvement of females' in the informal area portrays the likelihood of their employment in inferior quality work, as the informal sector isn't checked and charged by the public authority and excluded from the national GDP. The Informal economy is for the most part connected with non-industrial nations as 70-80 % of female workforce of Vietnam and 46% in Nigeria is working in the informal economy (Nguyen et.al, 2014). They acquire an exceptionally minimal pay since they have restricted admittance to fundamental assets that incorporates schooling, specialized abilities, and monetary capitals (Fapohunda, 2012).

A few elements empower and engage females employed in

the informal economy to receive adequately paid work; schooling is the prominent one (ILO, 2018). As per UN Women (2015), schooling assumes an exceptionally critical part in the female labor force especially in the informal area. They work at low-paying position and participate in uncompensated work for extended periods of time. Education provides them with the understanding of work privileges, admittance to great business chances to further develop their lives, and diminishes the likelihood that females participate in less paid HBW. Hunt and Samman, (2016) show that education influences the income emphatically as ladies with primary schooling take a 10 percent increment in their earnings, a further schooling at a secondary level rises compensation by 15-20 percent, and a 17 percent rise in their incomes with an additional education at a tertiary level.

Internationally, nearly 91% of females in an informal sector don't have sufficient or only have the primary education (ILO, 2018). A study inspected the effect of schooling on female interest in the informal area of 40 non-industrial nations (Nguyen, 2015). The aftereffects of the review reveals that education positively affects ladies' portion in the public economy. Besides, ladies with advanced education become more conscious of the work market, ready to grab more talented positions, and got better wages.

Many researches show that female specialists need to confront unmerited compensation gaps in the work market and don't get any chance of progress. Ewoudou et.al, (2006) directed a review utilizing Cameron Household Survey (CHS) 2001 dataset, which comprises of an example of 10,992 families and 56,443 people. He dissected hourly profit of people and training by gender in the formal and casual areas. The review results demonstrated that advanced learning builds the likelihood of male and female laborers moving from the informal segment to the proper domain. Nonetheless, ladies are bound to serve in the informal area and suffer wage segregation as they essentially acquire low earnings as that of male laborers. Females work for extended periods of time yet don't receive great wages when contrasted with their male partners (Arntz et.al, 2018). The higher education can shift the situation as it's obvious that secondary schooling particularly professional training emphatically influences the income of female specialists in the informal sector.

All around the world, human resources venture is viewed as a vital prerequisite to further develop the work market results and training is viewed as one of the fundamental parts. Accomplishment in human resources can be estimated as higher work usefulness which prompts higher income and finally a better societal and monetary

prosperity. Rukumnuaykit and Pholphirul (2015), demonstrate that workers with advanced education have higher work usefulness and produces an increment in the normal wage of the individual.

Training

There is a significant impact of training on efficiency and income of people as Konings and Vanormelingen (2010) demonstrates that the usefulness of skilled specialist is 23% higher contrasted with undeveloped laborer, and skilled laborers' wages rises more than the undeveloped labour. Besides, training additionally influences the usefulness of organizations also as work efficiency is 27% greater in training companies with a 36% higher salaries when contrasted with non-training organizations.

Generally, the informal economy workers (IEWs) don't have sufficient specialized abilities, that influences production. Peter-Cookey et.al (2017) directed a research comprising 74% informal female workers (IFWs) having home-based workers for Thailand, upholds this claim by showing that great specialized abilities decidedly affect informal labors' efficiency. Most of the IFWs accepted that technical coaching gives them more realistic experience than hypothetical information, further develops their work efficiency, and makes them ready to meet the client prerequisites. In addition, IFWs need to overhaul their abilities through important and great value training according to the work market interest to limit the effect of low abilities on their work execution and usefulness also.

Zwrick (2006), in research directed in Germany, likewise tracked down beneficial outcomes of training on efficiency as; coaching programs upgrade the abilities and capacities of laborers. Moreover, it was seen that professional preparation impacts the woman's income. The female laborers who are getting some sort of professional trainings, their degree of income is higher than the those who didn't get any professional education (Chaudhry et.al, 2010; Nasir, 2002; Psacharopoulos and Layard, 1994)

Smith (2001) inspected the impact of training as well as schooling on the usefulness of laborers in the United States (US). Utilizing the 1991 U.S people survey, the consequences of the review show that instruction and training both decidedly affected the time-based compensations of the respondents. Notwithstanding, when the information was characterized in view of gender, results showed that for females coaching greatly affects time-based compensations contrasted with men. In addition, when information was seen by the

profession of the respondents, the outcomes showed that preparing significantly affected salaries in 7 out of 12 significant professions and for the wages each hour to improve, the more extended times of training considered more significant with higher impacts on females.

Involvement of Middlemen and labor productivity

Regarding HBW, the middleman's job is almost unavoidable. Anybody can be qualified as an agent assuming he resides in a similar region and can give work to HBWs. He gives job to the females at their homes and consequently they get pitiful compensation for the job done. Therefore, this situation gathers power in the mediator's hand and he got strengthened to exploit the weak states of the HBWs (Hassan and Azman, 2014).

Statistically stating, the fraction of dependent women on middleman is 81%. Out of this rate most of the laborers are not permitted to collaborate with the agent due to social standards that limit communication between opposite genders. In such a situation, the male relatives communicate with the middlemen on behalf of the FHBWs. This serve as a proof of societal rejection which demonstrates the significant boundary for the laborers towards the human improvement. (Hassan and Farooq, 2015)

Home-based workers don't reach straight to the employer for employment (Prugl, 1999). HBWs are undetectable without any pay arrangement and proper contract. They are oppressed to depend on the agent for work. Consequently, their associations with the agent matter; he is the individual who gives contract/work, raw substance, compensation for the principle business to the HBWs (Pearson, 2004). Because of mobility issues and socio-cultural variables that bound FHBWs to telecommute and make them reliant upon the subcontractor, specialist, or mediator for work, gear, compensation, and selling of the completed item. The agent frequently takes advantage of FHBWs, gives them poor value raw substance, and gives low salaries that influence the product's nature and limit the profit (Sudarshan and Sinha, 2011).

Indeed, within conventional segment, women workers recruited through mediators stay helpless against double-dealing and receive lowest pay.⁸ As indicated by the Punjab HBWs review 2016, 51% of the HBWs were getting lacking compensation and 60% were approached the agent to increment their compensation, however just

⁸ Situational Analysis of Women Employed in Manufacturing Sector: The Case Study of Lahore, 2018

12.3% were succeeded in improved wage.⁹ While 85.3% of project workers wouldn't expand the HBWs' compensation. 6.6% of the HBWs announced a decrease in their wages by the agent and 7.3% of those informed that it was because of defected natural material, 6.7% featured bad quality items stock and 1.4% reacted that it was because of transportation delays. Besides, ladies turned into the critical objective of abuse for subcontractors because of the weakness of the woman workforce as ladies laborers paid a tiny part of installment of what the middlemen got from the contracting organization, homeworkers got low compensation than their efficiency. Actually, they found terrible agreements; low standard gear's that influences their efficiency (Sethuraman, 1998).

Awareness of labor laws and productivity

Laborers' lawful assurance is normally viewed as solid as it reduces the imbalance effects of dealing power which is a vital component of the work association (Deakin et.al, 2014). Business connections are vital because public work regulations and ILO standers are relevant and provide legitimate assurance to the workers having a reasonable recognition and work relationship with their boss. In the situation where the connection is uncertain between the employee and the employer, laborers stay unprotected and they can't get their privileges under the work market guidelines and systems (ILO, 2003). Bosses ordinarily keep away from consistence with work regulations so they can employ modest work on least wages. In this specific situation, laborers should be aware of the current work regulations to get to their work freedoms, social assurance, and business benefits (Chen, 2012). Also, Labour regulationa like Equal Remuneration Convention, 1951¹⁰, Labour Rights in the Constitution¹¹, C177 - Home Work Convention, 1996 (No. 177)¹²- ILO and Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), 1979¹³, The Punjab Industrial Relations Act, 2010, The Punjab Employees' Social Security Ordinance, 1965, The Employees' Old-Age Benefits Act, 1976, The Payment of Wages Act, 1936, Right to Organise and Collective Bargaining Convention, 1949, Hours of Work (Industry)

⁹ Punjab Homebased Workers Survey, 2016 by Bureau of Statistics Punjab

¹⁰ <https://pakistanconstitutionlaw.com>

¹¹ <http://www.ilo.org>

¹² <http://www.ilo.org>

¹³ <http://www.un.org>

Convention, 1919 and the Minimum Wages Ordinance, 1961¹⁴ don't cover HBWs, while, their working¹⁵ hours are longer and compensation is low. They are not provided with any legal coverage. Indeed, even the 1934 Factory Act doesn't make a difference to them. Consequently, they can't get to legitimate administrations, offices, privileges, and advantages, including fair compensation under the work market regulations.

Gatti (2009) contended that workers' legitimate security is important as work assurance regulations decidedly affect usefulness. During examination of 20 OECD nations, Storm et. al (2007) demonstrated that work market guidelines altogether influence work efficiency as high controlled economies are exceptionally useful.

Participation in Industrial Exhibitions and labor productivity

GmbH Company (2019), an exhibition show administration, featuring the advantages of investment in exhibitions, examined that modern presentations/expo give a decent stage to manufacturer to show their items and to get many advantages. As it permits business visionaries/makers to meet straightforwardly with purchasers or possible clients, exhibit their item to a major stage, they become aware of their business rivals, market interests, and client needs. This empowers the maker or business visionary to work on the administrations or items and lift the organizations.

It was likewise shown by Mare (2012) that female employees' involvement in fair exchange system makes them surer and better experienced, gives them data on corporate abilities, fair wages, further develops market access, organizing and above all they gain helpful information about market drifts, their item interest and client needs. These cause them to believe that they can accomplish further, grow their industry, and become monetarily more enabled.

Regardless of such advantages, the handful of HBWs and independently hired individuals find the opportunity to take a part in exhibitions. As per Punjab HBWs Survey (2016), individual HBWs involvement in trade displays is extremely restricted as just 0.8% HBWs took an interest in trade shows at the district or local stages.

4. Empirical Modeling and data

4.1 Empirical Model

¹⁴ <http://www.punjablaws.gov.pk/>

¹⁵ <https://www.lef.org.pk>

The following log-linear regression model is used:

$$\begin{aligned} \log LP_i = & \alpha + \beta_1 \text{human capital}_i + \beta_2 \text{Social capital}_i \\ & + \beta_3 \text{Role of middle man}_i \\ & + \beta_4 \text{awareness of laws}_i + \beta_5 X + \varepsilon_i \end{aligned}$$

Where $i = 1, 2, 3, \dots, N$ is the FHBW index and LP symbolizes labor productivity. Following the common practice in the literature (e.g. Weeraratne and Silva, 2016; Dukec and Miroslav, 2017) labor productivity of FHBWs is described as

Labor productivity

= volume measure of output/measure of input use

where:

The volume proportion of result is the pay acquired by the FHBWs each day and the proportion of information use is the quantity of hours worked by the FHBWs each day (OECD, Labor Productivity Indicators 2008). It estimates the worth of HBWs each hour worked yield in Pakistani rupees (PKR). X is a standard vector of control elements and ε_i is the error term. The description of the control and independent variables are presented in Table 1.

Table1: Labour Productivity Determinants

Human capital	Social capital	Middleman role	Awareness of laws	Control variables
1.Education 2.Training	1.Involvement in exhibition	1.Purchasing of raw material	1. labor laws	1. age 2.square of age 3.divisions 4.area 5.household consumption expenditures

For the analysis, a blend strategy technique has been utilized; through factual investigation, the differentials of work efficiency of FHBWs at the divisional level are noticed. For model estimation, the conventional least square assessor (OLS) is applied in Punjab in general. Notwithstanding, to stay away from heterogeneous divisional and region fixed impacts, we control for regions and divisions in regressions.

4.2 Data and variable construction

The "Punjab Home-Based Workers Survey 2016" dataset, gathered collectively by the Punjab Bureau of Statistics, and Labor &

Human Resource Department has been utilized for investigation. The information space consists of rural and urban areas at a provisional level. The Punjab is segmented into nine divisions in particular: Lahore, Sahiwal, Multan, Bahawalpur, Dera Ghazi Khan, Sargodha, Rawalpindi, Faisalabad, and Gujranwala. The information is illustrative of the divisional level. A total of 13,469 samples were available, out of which 7,541 HBWs were associated with home-based work in urban regions and 5,928 in rural regions. Considerable fraction of women, for example 91%, were engaged with HBW than the male counterparts. The motivation behind the review was to recognize FHBWs needs. Along these lines, the dataset comprises of 12,181 female respondents having age group 15 years or above. In the work, it is estimated that women's schooling, coaching, locale (rural or urban), the job of mediators, consciousness of work regulations, and their involvement in trade shows are significant elements that influence their usefulness. A concise outline of the development of factors that are utilized in the investigation is summed up as under.

Table 2: Data Description

Variable name	Explanation
Education	Respondents received education: primary, middle, secondary, and above. Respondents received no education at all (base category).
Training	Respondents obtained training from formal or informal sources. Respondents did not obtained any training (base category)
Role of Middleman	Respondent collected raw stuff from the middleman, other individuals of the family, and others. Respondent acquired raw stuff by themselves (base category)
Awareness of Labour Laws	Respondent's awareness regarding the current labour laws
Participation in Exhibitions	Respondent's participation in trade exhibitions at national or global level Respondent's zero involvement in the base category.
Area	Respondent resides either in urban or rural area

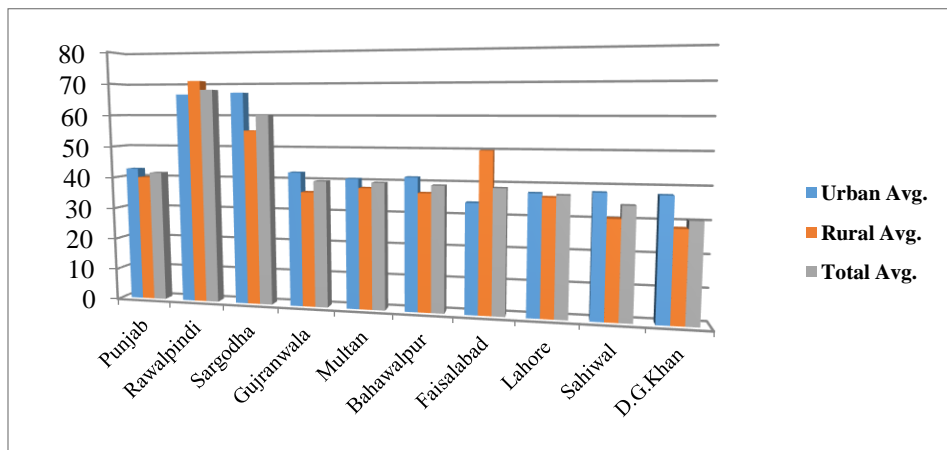
5. Analysis

5.1 Labor productivity in Punjab

This segment demonstrates formal statistics associated to the productivity differentials in rural and urban regions covering 9

different divisions in Punjab.

Figure 1: FHBWs' Labour Productivity in different Punjab divisions



Source: Results based on Punjab Home-based workers survey, 2016

Generally, work usefulness of FHBWs in Punjab is assessed on average as PKR. 41.5, though, female laborers from metropolitan regions have been seen to be somewhat more useful with a normal of PKR. 42.7 when contrasted with the rural regions where work usefulness of FHBWs is estimated as PKR. 40.01. In any case, in Rawalpindi division, FHBWs has the most noteworthy efficiency at PKR. 68.00. While the situation in south district divisions is alarming, for instance, in D.G. Khan, FHBWs has the least usefulness level PKR. 30.63 as opposed to any remaining divisions. Moreover, with regards to urban and rural settings, shockingly FHBWs from rural regions have the most elevated efficiency level PKR. 70.77, seen in the Rawalpindi division when contrasted with normal efficiency of urban working females PKR. 67.06, observed in the Sargodha division.

5.2 Econometric Analysis

Table 3 represents the assessed efficiency equations. Three models are acquainted to highlight the robust aftereffects of the variable of interest. Standard errors are used in all determinations to stay away from the issue of heteroscedasticity. Keeping due to efficiency differentials as displayed in Figure 1, we likewise incorporate division and region dummies.

Human capital, labor productivity, and middleman's role

In Table 3, Column (1) represents the consequences of the impacts of human resources and the mediator on the work usefulness of female home-based workers. R-square isn't exceptionally worth high which is generally seen in cross-segment information with an enormous set of observations.

The outcomes depict, the work efficiency of FHBWs increments by an increment in the training intensity. The coefficient of regression implies that the FHBWs having education primary, middle, or matric are more useful than those workers with no schooling by 11%, 12%, and 24% correspondingly. Also, the distinctions are significant statistically. These outcomes are upheld by Mincer (1974) and Becker (1975). It was likewise shown by Jones (2001) that literate labors are more useful.

Dearden et. al (2006) showed that business relevant training is essentially connected with better usefulness. It is observed that training contains huge beneficial outcome on the useful capability of FHBWs. Training dummies coefficients implies that the workers having trainings from public organizations are more useful by 29% than the workers with no training at all. Alternatively, the HBWs trained from other informal venues have the work efficiency of 19%, the HBWs with coaching from private organizations 27%, and the laborers with preparing from NGOs 18% more than the untrained FHBWs. The distinctions are significant. Bartel, 1994 stated that proper trainings have a critical and positive impact on work usefulness.

Further, outcomes of the middleman's impact on work usefulness differentials of FHBWs are according to the hypothetical agreement as the middleman manipulates the HBWs. WEIGO, 2015 on Increasing Livelihoods for Home-based Embroidery Workers in Delhi, India, features that FHBWs rely on the middlemen and deal with makor issues like supply of low standard raw substance which influences the nature of work as well as their pay.

The dummy coefficient of obtainment of raw substance from middleman is significant statistically and demonstrates that the FHBWs who get the logistics from brokers are 53% less useful than the HBWs who get the stuff all alone. Productivity levels of different sources changes in various regions and various divisions. In general, a similar pattern was seen at the divisional and provisional level, that efficiency was least when the material was obtained by brokers and it was most elevated when the material was acquired without help from

anyone else or another individual from the family. By and large, the equivalent is valid in rural and urban areas of both the divisions and province, however there are additionally a few exemptions for this standard.

The dummy coefficient of the region proposes that the useful capability of FHBWs is something very similar in rural and urban Punjab because of no significant difference. The divisional dummies coefficients show the useful capability of FHBWs in Sargodha, Rawalpindi, and Gujranwala are more noteworthy than the Lahore division by 8%, 35%, and 11% percent, individually. The work usefulness of FHBWs is something similar in Multan-Lahore and Faisalabad-Lahore, as the distinctions are not measurably huge. Notwithstanding, in Sahiwal, D.G. Khan, and Bahawalpur divisions FHBWs are altogether less useful than in Lahore by 13%, 14%, and 10%, respectively.

The age coefficient reveals that assuming 1 year increment in age, the normal work usefulness of FHBWs increments by 2%. Additionally, it is found that the normal efficiency is higher within range 15-18 years and diminishes in the wake of arriving at the age of 60 or more. In this way, FHBWs within 25-40 years happened to be more useful (on normal 43.94). Notwithstanding, FHBWs with the age of 61 years or more were the most un-useful with normal efficiency of 24.36. Moreover, the increment in utilization consumptions additionally builds the useful capability of FHBWs essentially. This variable is recognized as the fundamental component that urges women to devote more efforts on locally situated job and produce more. Although, monetary size of the variable is tiny.

Table 3: Regression estimation of labor productivity of FHBWs

Dependent variable	Log of labor productivity		
Independent variables			
	(1)	(2)	(3)
Human capital			
Education A (1 primary, 0 otherwise)	0.11*** (0.03)	0.10*** (0.02)	0.11*** (0.02)
Education B (1 middle, 0 otherwise)	0.12*** (0.03)	0.11*** (0.03)	0.12*** (0.03)
Education C (1 matric and above, 0 otherwise)	0.24*** (0.03)	0.22*** (0.03)	0.24*** (0.03)
Training A (1 govt institute, 0 otherwise)	0.29*** (0.05)	0.29*** (0.05)	0.29*** (0.05)

Training B (1 informal, 0 otherwise)	0.19*** (0.02)	0.19*** (0.02)	0.19*** (0.02)
Training C (1 NGO, 0 otherwise)	0.18** (0.08)	0.17** (0.08)	0.17** (0.08)
Training D (1 other sources, 0 otherwise)	0.10** (0.05)	0.11** (0.05)	0.10** (0.05)
Training E (1 private, 0 otherwise)	0.23*** (0.00)	0.22*** (0.05)	0.23*** (0.05)
Middleman's role			
(1 if receive raw products through Middleman, 0 otherwise)	-0.53*** (0.03)	-0.53*** (0.03)	-0.53*** (0.03)
(1 if receive raw substance from Others, 0 otherwise)	0.14** (0.06)	0.15** (0.06)	0.14** (0.06)
(1 if receive raw material from another member 0 otherwise)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)
Social capital			
(1 if individual participation, 0 otherwise)			0.31** (0.15)
(1 if organizational participation, 0 otherwise)			0.16 (0.10)
Labor Laws awareness			
(1 if awareness of labor laws, 0 otherwise)		0.15*** (0.03)	
Other control variables			
Age	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)
Square of age	-0.0003*** (0.00)	-0.0003*** (0.00)	-0.0003*** (0.00)
Household consumption expenditures	0.0005*** (0.00)	0.0005*** (0.00)	0.0005*** (0.00)
Area (1 if urban, 0 if rural)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Bahawalpur (1 if Bahawalpur, 0 otherwise)	-0.10*** (0.03)	-0.09*** (0.03)	-0.11*** (0.03)
D.G.Khan (1 if D.G. Khan, 0 otherwise)	-0.14*** (0.04)	-0.13*** (0.04)	-0.14*** (0.04)
Faisalabad (1 if Faisalabad, 0 otherwise)	0.02 (0.03)	0.03 (0.03)	0.02 (0.03)
Gujranwala (1 if Gujranwala, 0 otherwise)	0.11*** (0.03)	0.12*** (0.03)	0.11*** (0.03)
Multan (1 if Multan, 0 otherwise)	-0.03 (0.03)	-0.04 (0.03)	-0.03 (0.03)

Rawalpindi (1 if Rawalpindi, 0 otherwise)	0.35*** (0.05)	0.33*** (0.05)	0.35*** (0.05)
Sahiwal (1 if Sahiwal, 0 otherwise)	-0.13*** (0.05)	-0.12*** (0.05)	-0.13*** (0.05)
Sargodha (1 if Sargodha, 0 otherwise)	0.08** (0.04)	0.08** (0.04)	0.08** (0.04)
Constant	2.54*** (0.08)	2.53*** (0.08)	2.54*** (0.07)
Observations	11043	11036	11040
R-squared	0.32	0.32	0.32
F-statistics (p-value)	189 (0.00)	183 (0.00)	175 (0.00)

Note: Parenthesis are used for robust standard errors. ** and *** indicate significance at the 5% and 1% levels respectively.

Social capital and labor productivity

The second column of Table 3 shows the social capital estimated as the female home-based workers involvement in trade shows. The coefficient on the dummy of cooperation independently is critical at the 5% level and demonstrates the useful capability of female workers who took an interest in displays exclusively is 31% higher than the FHBWs who won't ever take part. There is an equal impact of all other factors as in the regression introduced in first column of Table 3.

Awareness of labor laws and labor productivity

Work regulations serves as a guide for laborers. The understanding and awareness of employees is vital to resolve the concerns in the informal economy as well as to safeguard their privileges (Lisakafu, 2014). The third column in Table 3 indicates the aftereffects of the impacts of the understanding of work regulations on the usefulness of female home-based workers in Punjab. The coefficient on the dummy of consciousness of work regulations shows that there is a critical distinction in the useful capability of people who understands the work regulations and the people who don't. The FHBWs with the consciousness of work regulations are 15% more

useful than others. The impacts of the multitude of different factors are equivalent to in first and second columns

6. Conclusion and Policy advice

Home-based workers are suffering from intergenerational poverty and the incomes they receive is not being instrumental in upgrading their living standards. In this paper, we examine the factors that affect the productivity of FHBWs in Punjab, Pakistan to find ways of enhancement of their living standard. The detailed investigation implies the following results and policy suggestions: Firstly, the increase in education level also increase the labor productivity of HBWs e.g., FHBWs having education level matric or above were observed to be more productive. Therefore, policymakers should focus on the easy access of higher education to HBWs. Secondly, government trained FHBWs were more productive and efficient as compared to privately trained FHBWs. It shows the effectiveness of government training programs in increasing the productive potential of workers suggesting that there is a requirement to establish more training programs/institutes for females and provide skills training to them concerning local market demand in rural and urban areas. Thirdly, there is a negative impact of middleman role on the labor productivity, as efficiency of FHBWs was lowest if the raw material was acquired through middleman.¹⁶ The policymakers should draw certain lawful implications regarding the middleman's role to deal with grievances and settle the problems of FHBWs. Another solution is to increase the direct market access of FHBWs by focusing on the issues that restrict their direct market access and make them dependent on middlemen such as mobility, harassment, etc. Fourthly, participation in exhibitions has a positive impact on the work productivity of FHBWs, as it offers a chance for laborers to display and get acknowledgement of their work. Thus, industrial exhibitions should be organized by the provincial government at the local level and such mechanisms should be established that support easy access

¹⁶ TEVTA(Technical Education & Vocational Training Authority, PVTTC(Punjab Vocational Training Council) both skills training institutes are founded by the Government of Punjab , PSDF(Punjab Skills Development Fund) is a not-for-profit company set up by the Government of Punjab in collaboration with DFID.

of FHBWs to exhibitions.

Finally, the awareness of work regulations and laws considerably enhanced the productive capacity of individuals. Moreover, the workers who are aware of labor laws can deal different situations properly and could not be exploited by the middleman or others. However, the Punjab¹⁷ government developed a comprehensive law; Punjab Home Based Workers Act, which recognizes home-based workers as “workers” and extended social protection to them but unfortunately, it has been awaiting approval of the Law Department since, 2012. The objective of HBWs Policy is to develop strategies, plans, and programs for the protection and promotion of rights and benefits of home-based workers. This policy is proposed to support the regulations and laws regarding the HBWs established by ILO conventions, global human rights treaties, and commitments, etc. but the policy document has not been approved yet, unfortunately. Once the law is passed home-based workers will get their legal rights.

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¹⁷ <http://www.wiego.org>

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